

**ABSTRACT OF THE DISCLOSURE**

10 A gallium nitride-based HEMT device, comprising a channel layer formed of an InGaN alloy. Such device may comprise an AlGaIn/InGaIn heterostructure, e.g., in a structure including a GaN layer, an InGaIn layer over the GaN layer, and a (doped or undoped) AlGaIn layer over the InGaIn layer. Alternatively, the HEMT device of the invention may be fabricated as a device which does not comprise any aluminum-containing layer, e.g., a GaN/InGaIn HEMT device or an InGaIn/InGaIn HEMT device.

15